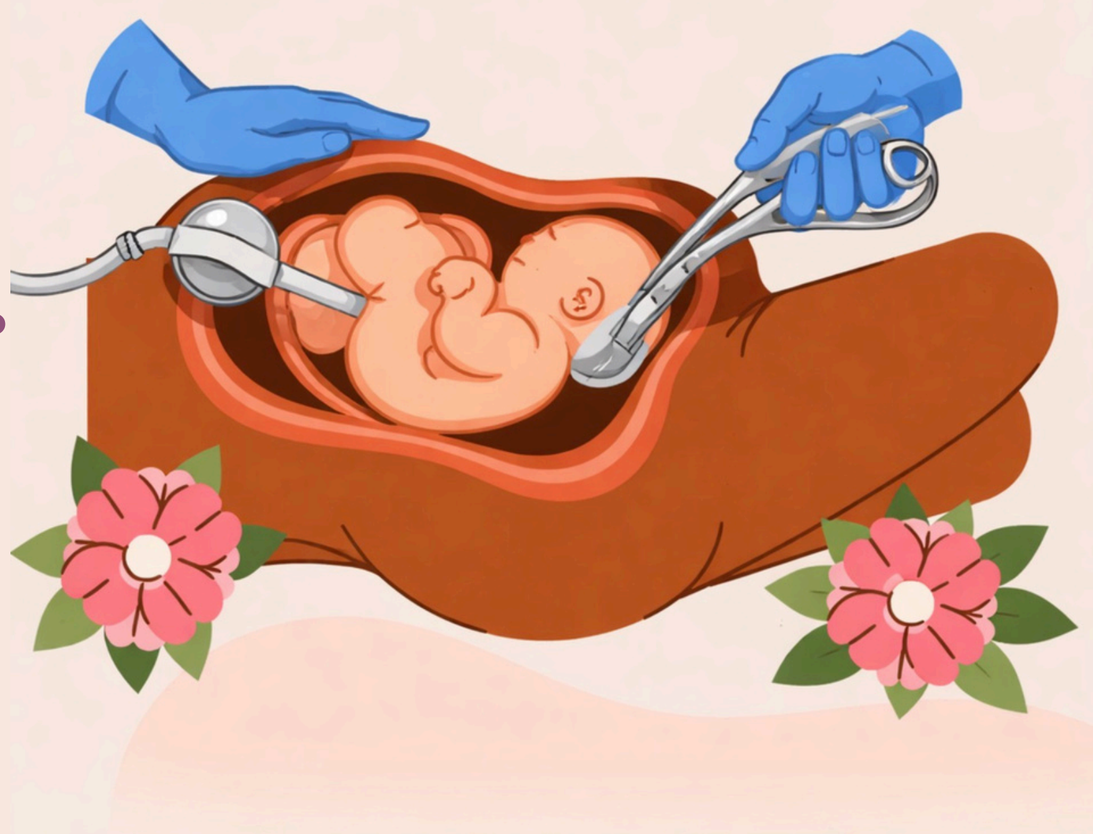
INSTRUMENTAL VAGINAL DELIVERY



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What is ASSISTED VAGINAL DELIVERY?

refers to a vaginal birth with the use of any type of forceps or vacuum extractor (ventouse).The goal of assisted vaginal birth is to expedite the birth with a **minimum of maternal or neonatal morbidity**. Assisted vaginal birth should be **performed only when the safety criteria have been met and when the benefits outweigh the risks.**

In the UK, between 10% and 15% of deliveries are assisted with forceps or ventouse. The rate in nulliparous women is as high as 30%. The incidence of assisted vaginal birth varies widely both within and between countries and this has an impact on rates of second-stage caesarean section.

YOU SHOULD KNOW ABOUT:

1- Indications for assisted vaginal birth
2- Classification of assisted vaginal birth
3- Safety criteria and contraindication for assisted vaginal birth
4- Instrument use in assisted vaginal birth (forceps, vacuum) — >basic structure, type
5- Choice of instrument
6- Approach to assisted vaginal birth (includes technique)
7- When should attempted (forceps, vacuum) birth be discontinued
8- Complications

Indications for Assisted vaginal Birth

The indications for Assisted vaginal Birth can be divided into fetal and maternal indications, although in many cases these factors coexist. The most common fetal indication is suspected fetal compromise usually based on cardiotocography (CTG) abnormalities. The most common maternal indication is a prolonged active second stage of labour.

Type	Indication
Fetal	Suspected fetal compromise (pathological cardiotocograph, abnormal pH or lactate on fetal blood sampling, meconium)
Maternal	1.Nulliparous women: lack of continuing progress for 3 hours (total of active and passive second stage of labour) with regional anaesthesia or 2 hours without regional anaesthesia
	2.Maternal exhaustion/distress
	3.Medical indications to avoid prolonged pushing or Valsalva (e.g. cardiac disease, hypertensive crisis, cerebral vascular disease, uncorrected cerebral vascular malformations, myasthenia gravis, spinal cord injury)
Combined	Fetal and maternal indications for assisted vaginal birth often coexist

SAFETY CRITERIA FOR Assisted vaginal Delivery:

A careful assessment should take place to ensure that the safety criteria for Assisted vaginal Birth have been fulfilled (Table 13.3). When the safety criteria are not met, assisted vaginal Birth is contraindicated

Table 13.3 Safety criteria for assisted vaginal birth

Area	Criteria
Full abdominal and vaginal examination	Head is fully engaged (zero fifths palpable) or no more than one-fifth palpable per abdomen
	Cervix is fully dilated and the membranes ruptured
	Station at level of ischial spines or below (0/+1/+2/+3)
	Exact position of the head has been determined so correct placement of the instrument can be achieved
	Caput and moulding is no more than moderate (+ or ++)
	Pelvis is deemed adequate
Preparation of the mother	Clear explanation given and informed consent obtained
	Trust has been established and the woman offers full cooperation
	Appropriate anaesthesia is in place; for mid-pelvic rotational delivery this will usually be a regional block; a pudendal block may be appropriate, in the context of urgency; a perineal block may be sufficient for low-pelvic or outlet delivery
	Maternal bladder has been emptied recently
	In-dwelling catheter has been removed or balloon deflated
	Aseptic technique
Preparation of staff	Operator has the knowledge, experience and skill necessary
	Adequate facilities are available (appropriate equipment, bed, lighting) and access to an operating theatre
	Back-up plan in place in case of failure to deliver. For mid-pelvic deliveries, theatre staff should be available immediately to allow a caesarean section to be performed without delay (<30 minutes); senior obstetrician should be present if a junior obstetrician is conducting the delivery
	Anticipation of complications that may arise (e.g. shoulder dystocia, post-partum haemorrhage)
	Personnel present that are trained in neonatal resuscitation

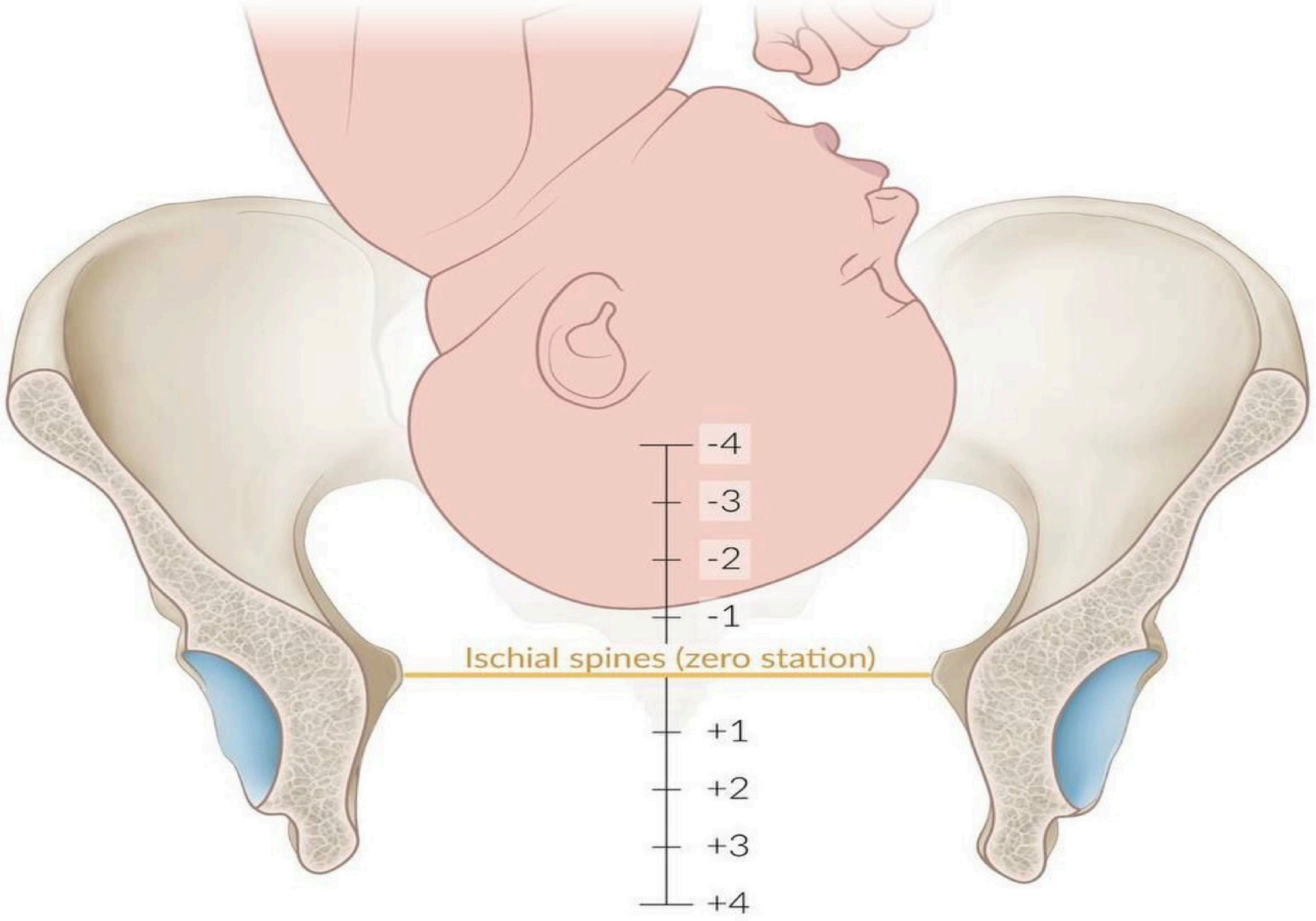
Classification of Assisted vaginal Delivery:

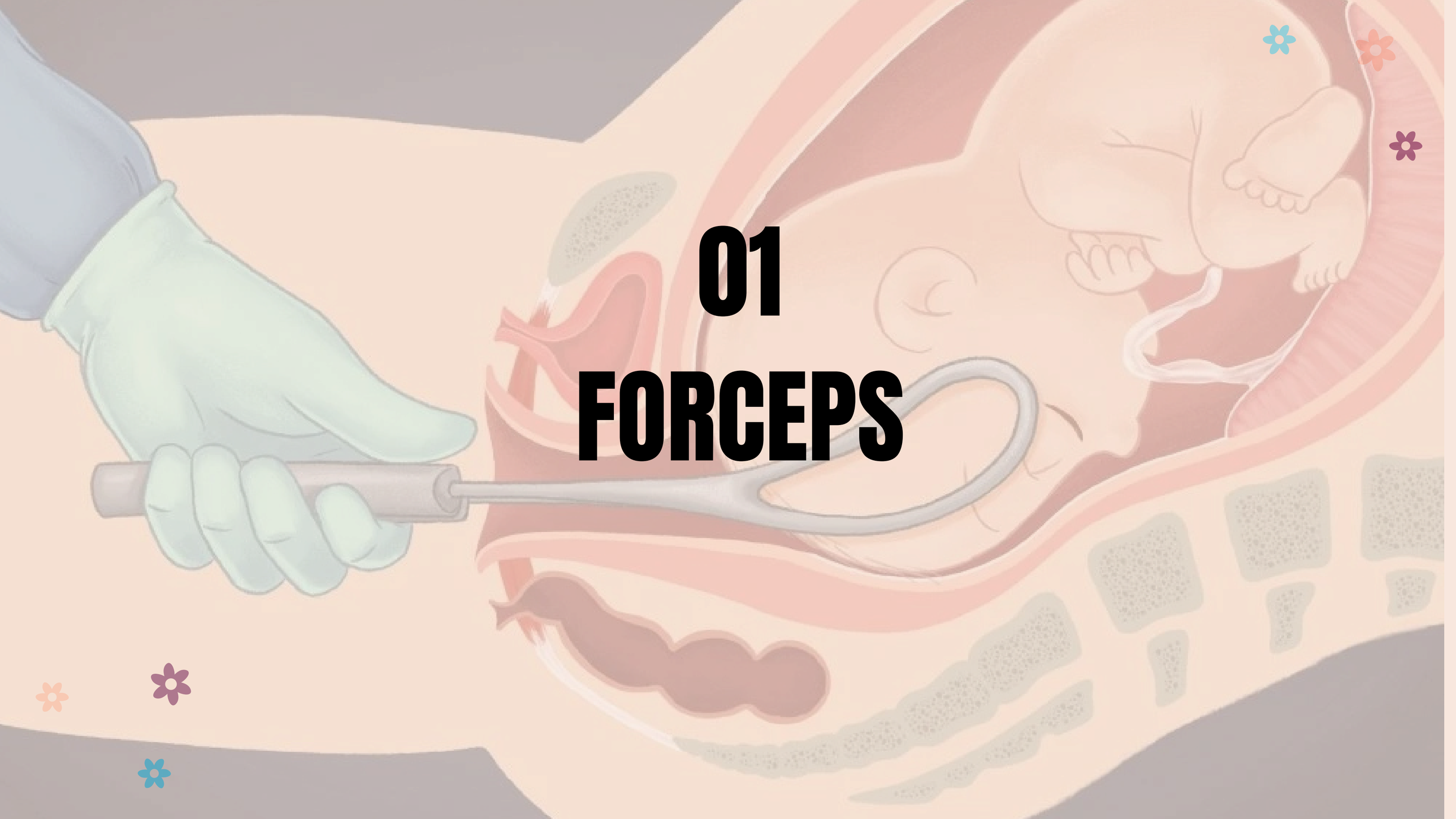
-Systematic abdominal and vaginal examinations are required to confirm the classification for assisted vaginal birth.

-Marked caput may give the impression that the vertex is lower than it is.

-In the majority of cases the fetal head will not be palpable abdominally, the exception being a deflexed occipito posterior position where up to one-fifth of the fetal head may be palpable abdominally when the fetal skull is at station 0 cm or below.

Type	Classification
Outlet	Fetal scalp visible without separating the labia Fetal skull has reached the pelvic floor Rotation does not exceed 45°
Low	Leading point of the skull is at station +2 cm or more but not on the pelvic floor Two subdivisions: (a) rotation of 45° or less and (b) rotation more than 45°
Mid	Fetal head is no more than one-fifth palpable per abdomen, usually zero fifths Leading point of the skull is above station +2 cm but not above the ischial spines (station 0 to + 1) Two subdivisions: (a) rotation of 45° or less and (b) rotation of more than 45°
High	Not appropriate; therefore, not included in classification (station -1 or above)


-4
-3
-2
-1
Ischial spines (zero station)
+1
+2
+3
+4



01
FORCEPS

FORCEPS

Definition : Metal device that enables gentle rotation and/or traction of fetal head during vaginal delivery. Generally , a forceps consists of 2 mirror-image metal instruments that are articulated.

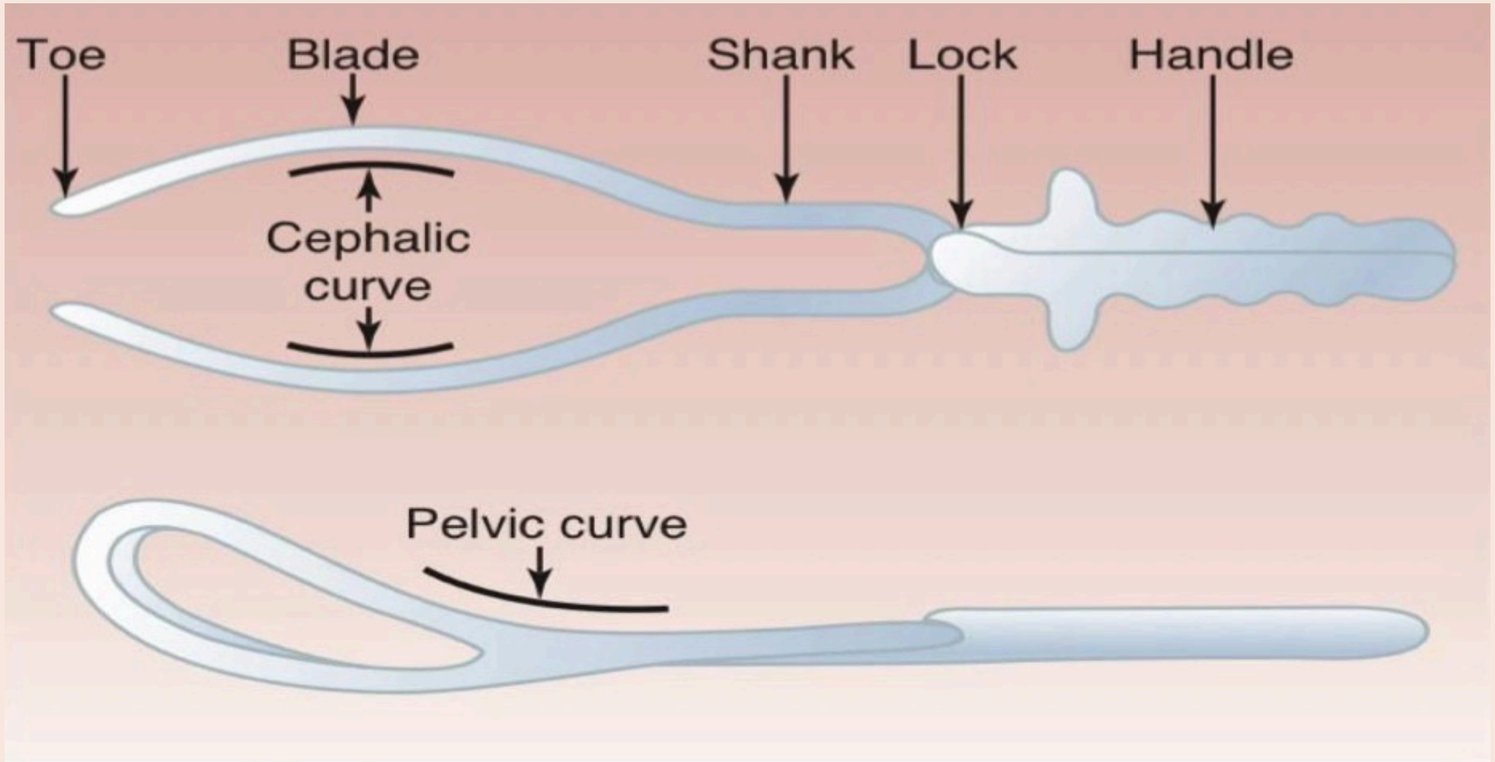
parts: **forceps have 4 major components** (basic structure), as follows:

1-**Blades**: The blades grasp the fetus. Each blade has a curve to fit around the fetal head. The blades are oval or elliptical and can be fenestrated (with a hole in the middle) or solid. Many blades are also curved in a plane 90 from the cephalic curve to fit the maternal pelvis (pelvic curve).
2-**Shanks**: The shanks connect **the blades to the handles and provide the length of the device.**

FORCEPS

3- **Lock**: The lock is the articulation between the shanks. Many different types have been designed.

4-**Handles**: The handles are where the operator holds the device and applies traction to the fetal head.

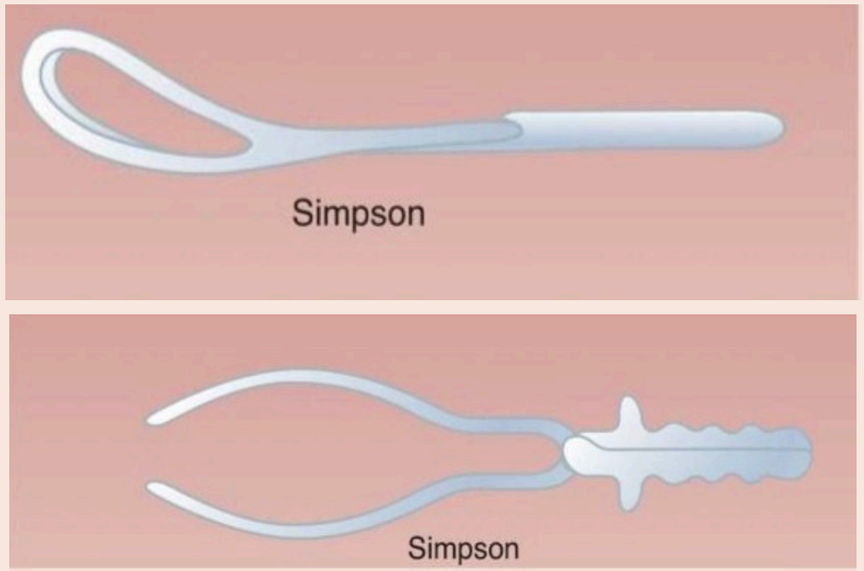


TYPE OF FORCEPS:

There is different type of forceps:(according to change in basic structure)

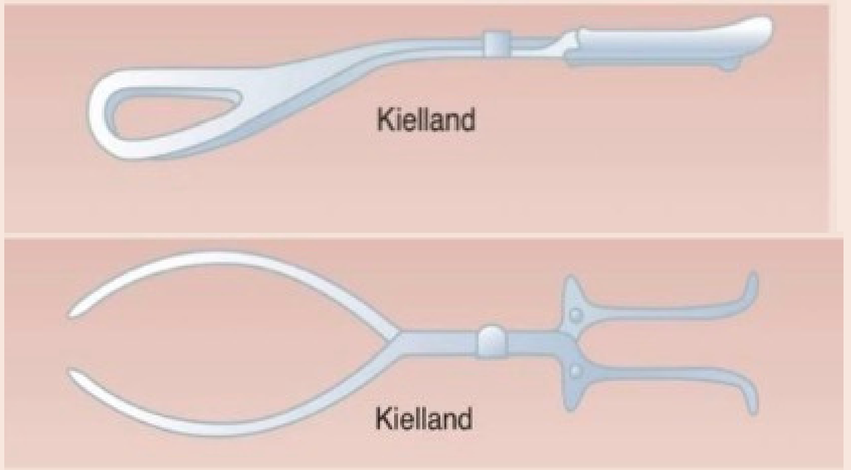
SIMPSON FORCEPS:

- Which have a pelvic curvature, a cephalic curvature, and locking handles
- Was commonly used .
- Used for aid in delivery a baby in an ideal occiput anterior position.



KIELLANDS FORCEPS:

- Sliding lock, minimal pelvic curvature.
- Used for rotation and extraction of the head which is arrested in the deep transverse or occipito-posterior position..

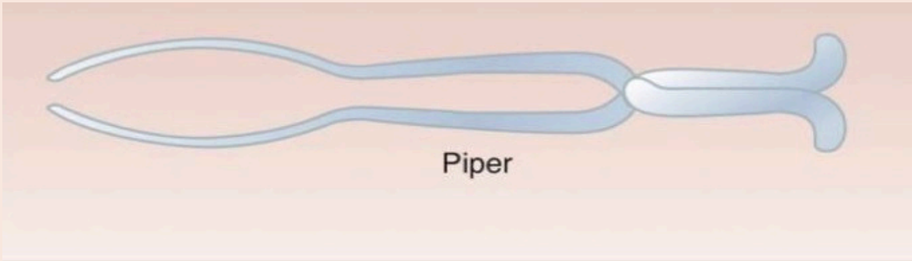


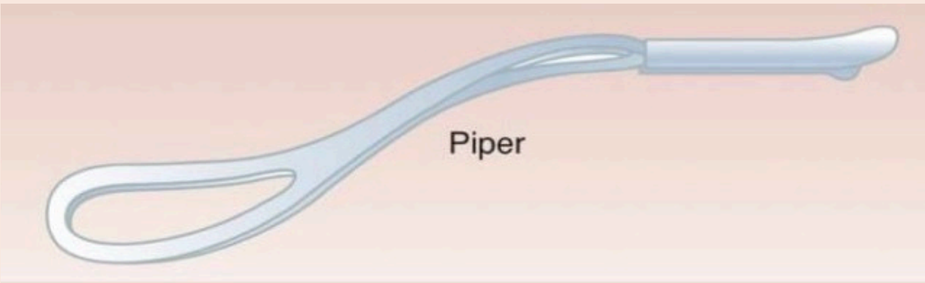
TYPE OF FORCEPS:

There is different type of forceps:(according to change in basic structure)

PIPER FORCEPS:

- Allows for application to the after coming head in breech deliveries.
- No pelvic curve, Longshanks to contain the body.
- Perineal curve.





Wrigley's forceps:

- It is a short light instrument with pelvic and cephalic curves and English lock.

Simpson forceps	Kielland forceps	Piper forceps	Barton forceps
			

CLASSIFICATION OF FORCEPS:

- **According to need to rotation the head:**

1-**Non rotational forceps:** are used when the head is occipito-anterior with no more than 45° deviation to the left or right . EX(Simpson forceps,Wrigley's Forceps).
2-**Rotational forceps :** are used when the head is positioned more than 45°from the vertical, rotation must be accomplished before traction(OT,OP). Ex:(Kielland forceps).

Kielland rotational forceps (left) and Simpson non-rotational forceps (right).

- **According to station:** outlet, low, mid forceps...

prerequisites for Operative Vaginal Delivery(forceps)

1. Cervix fully dilated
2. Rupture of membranes
3. Fetal head engaged (vertex presentation)
4. Knowledge of the fetal position
5. Fetal weight has been estimated
6. Maternal pelvis adequate for vaginal delivery
7. Anesthesia administered
8. The maternal bladder is empty
9. Maternal consent obtained, risks and benefits thoroughly explained
10. A back-up plan if the operative delivery method fails
11. Maternal cardiac or neurologic disease when maternal pushing is not feasible

Contraindications

- **Absolute maternal contraindications** for operative vaginal delivery include the following:

1.Cervix not fully dilated
2.Membranes intact
3.Fetal head not engaged
4.Unknown fetal position
5.Cephalopelvic disproportion

- **Relative maternal contraindications** include malpresentation (unless planned breech extraction) and connective tissue disorders.

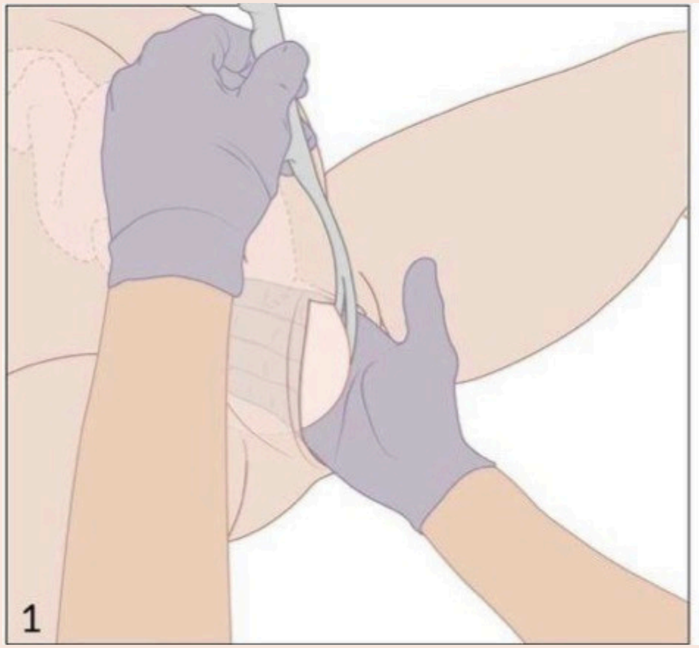
- **Absolute fetal contraindications** include the presence of a bleeding disorder (hemophilia, thrombocytopenia, von Willebrand disease) or bone demineralization (osteogenesis imperfecta).

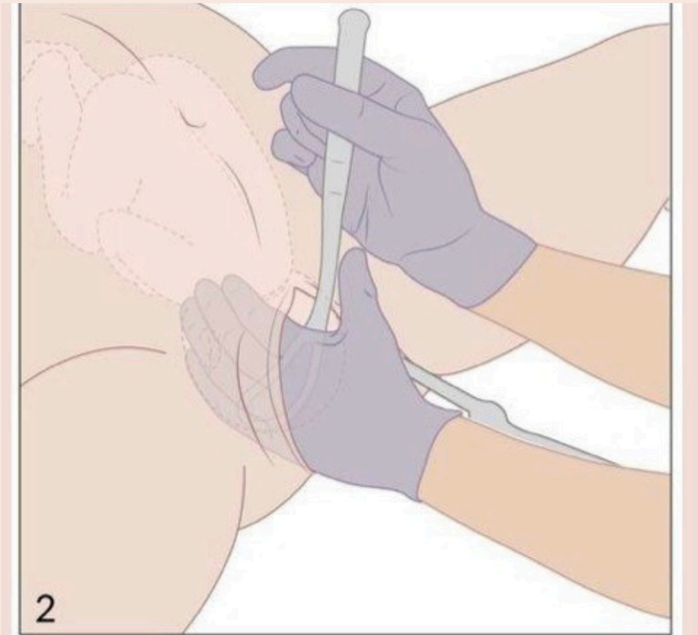
- **Relative fetal contraindications** include prematurity and macrosomia.

There is no consensus on the minimum or maximum estimated fetal weight for forceps delivery.

TECHNIQUE OF FORCEPS VAGINAL DELIVERY

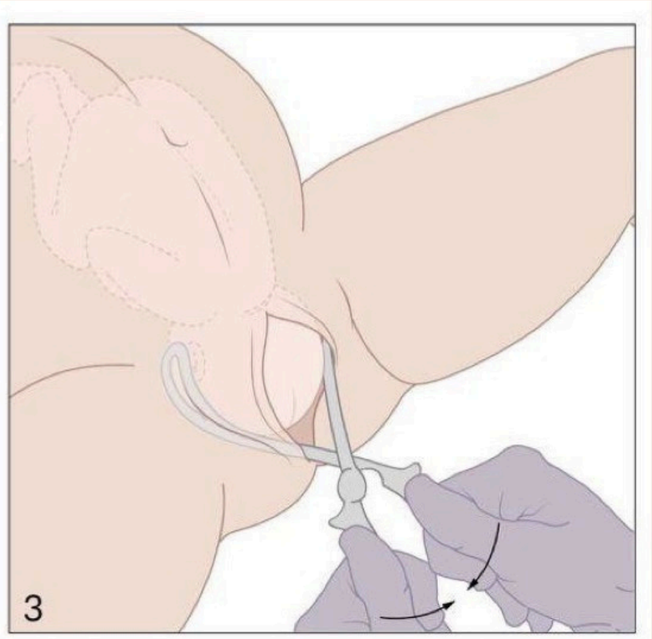
1. **Insertions of the left blade**
   - Hold the blade with a light “pencil grip.”
   - Advance it while following the pelvic and cephalic curves.
   - Use a curved movement of the blade between the fetal head and the operator’s right hand.
   - The operator’s right hand is kept along the left vaginal wall for protection.
   - , hands are swapped to insert the right blade using the same technique.

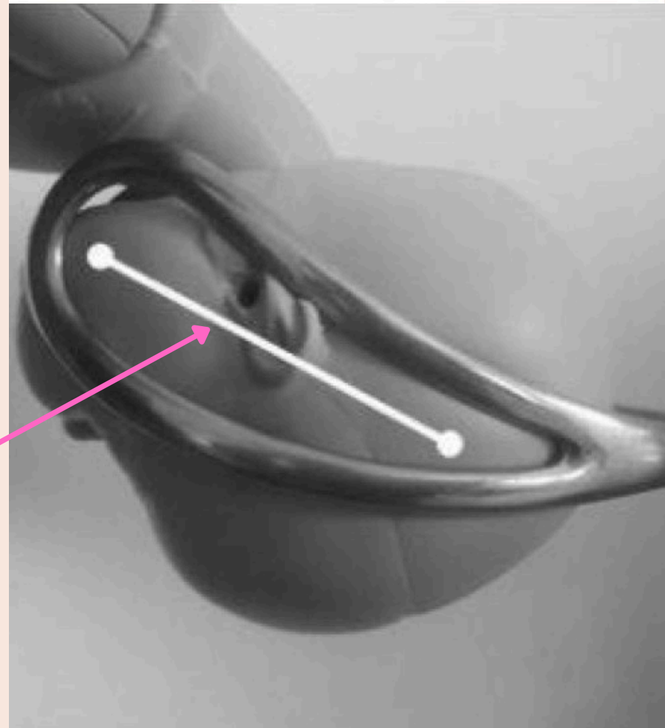




2. Position of blades

- The cephalic curve fits along either side of the fetal head
- The blades lying on the maxilla or malar eminences in the line of the mento-vertical diameter.
- The shanks are over the flexion point, allowing effective traction in the correct direction

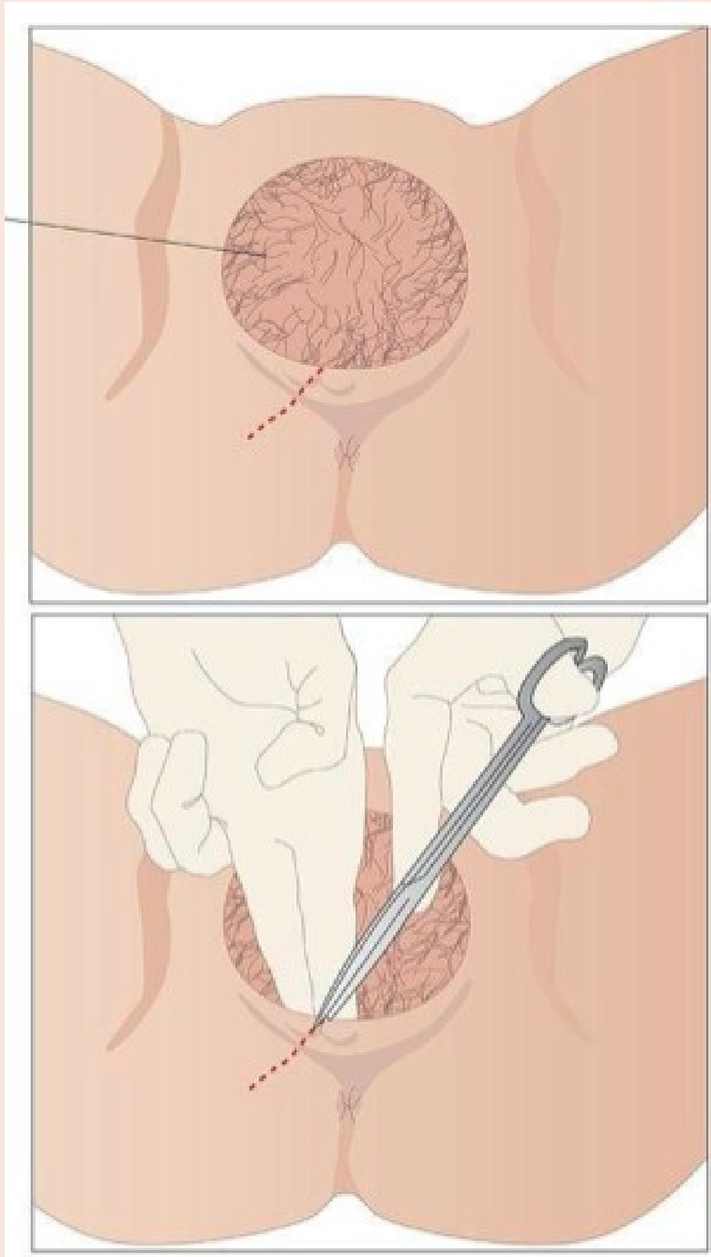




3. **Confirm correct application before traction:**
   - Sagittal suture in midline, equidistant from both blades.
   - Head well-flexed
   - No more than a fingertip passes into the fenestration at heel of blade
4. **Episiotomy**
   - Usually required as perineum stretches (should be discussed with the

woman)

   - Mediolateral episiotomy (60°) preferred → reduces risk of OASI(obstructed anal sphincter injury)
   - Strongest evidence: Nulliparous women and rigid perineum
   - Timing: when head is distending the perineum (crowning)

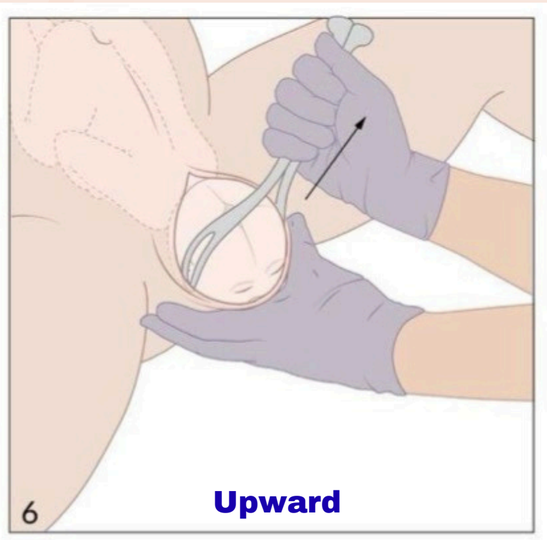


5.**Pajot's maneuver and traction**

- From mid- and low-cavity, Pajot's maneuver should be used, balancing outward traction with one hand with downward pressure on the shanks with the other
- The handles are kept horizontal to avoid trauma to the anterior vaginal wall from the toes of the blades.
- Traction is synchronized with contractions and maternal effort
- Initial traction direction: outwards & downwards along pelvic axis until head is crowning.

6.**Delivery of the head Once biparietal eminences** emerge under pubic arch:

- Change traction → upwards
- Head delivered by extension



When should attempted forceps birth be discontinued?

- Discontinue attempted forceps birth where the forceps cannot be applied easily, the handles do not approximate easily or if there is a lack of progressive descent with moderate traction.

- Discontinue rotational forceps birth if rotation is not easily achieved with gentle pressure.

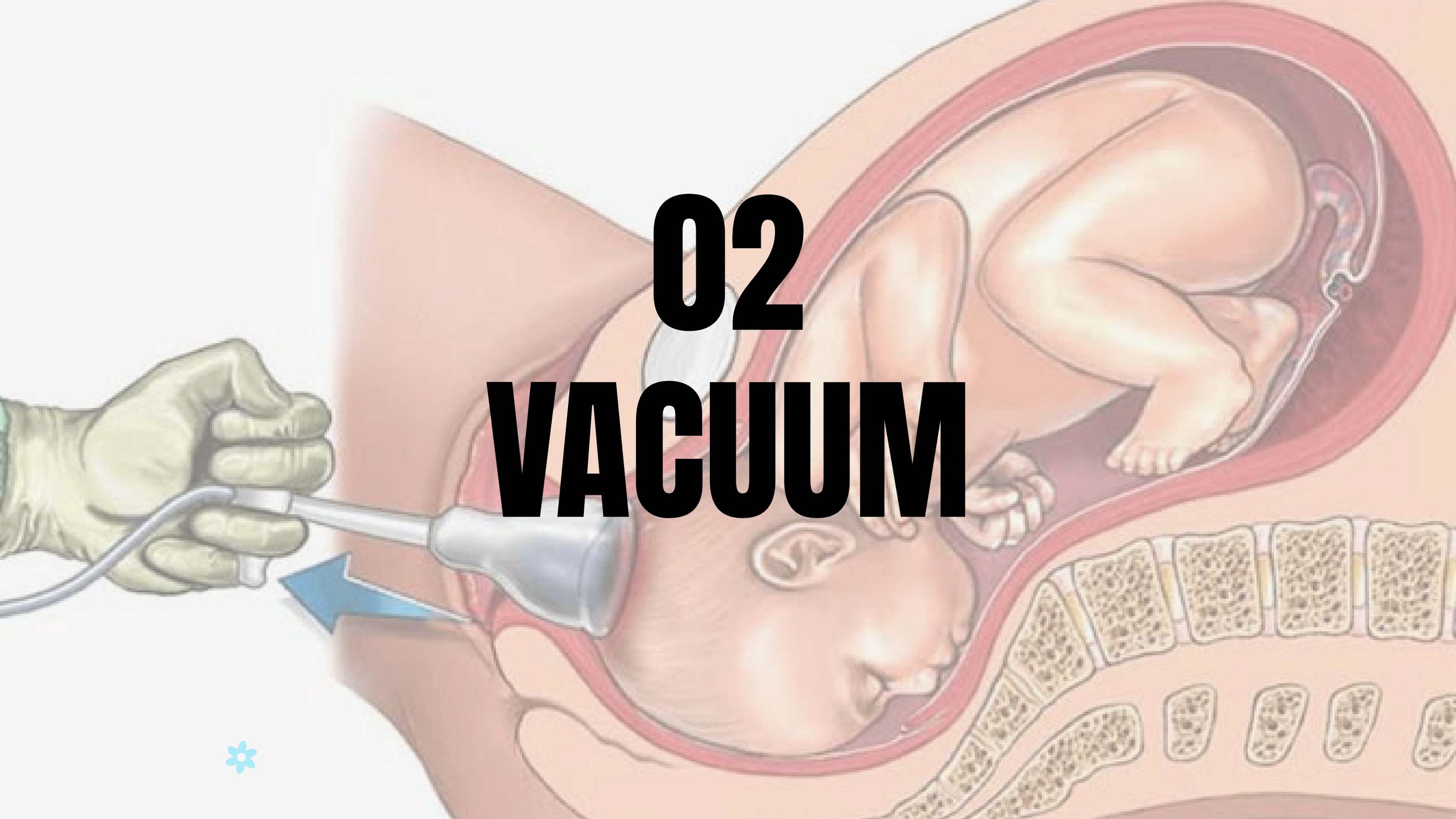
- Discontinue attempted forceps birth if birth is not imminent following three pulls of a correctly applied instrument by an experienced operator.

- If there is minimal descent with the first one or two pulls of the forceps, the operator should consider whether the application is suboptimal, the position has been incorrectly diagnosed or there is cephalopelvic disproportion. Less experienced operators should stop and seek a second opinion. Experienced operators should re-evaluate the clinical findings and either change clinical findings approach or discontinue the procedure.

- Obstetricians should be aware of the potential neonatal morbidity following a failed attempt at forceps birth and should inform the neonatologist when this occurs to ensure appropriate care of the baby.

- Obstetricians should be aware of the increased risk of fetal head impaction at caesarean birth following a failed attempt at forceps birth and should be prepared to disimpact the fetal head using recognised manoeuvres.

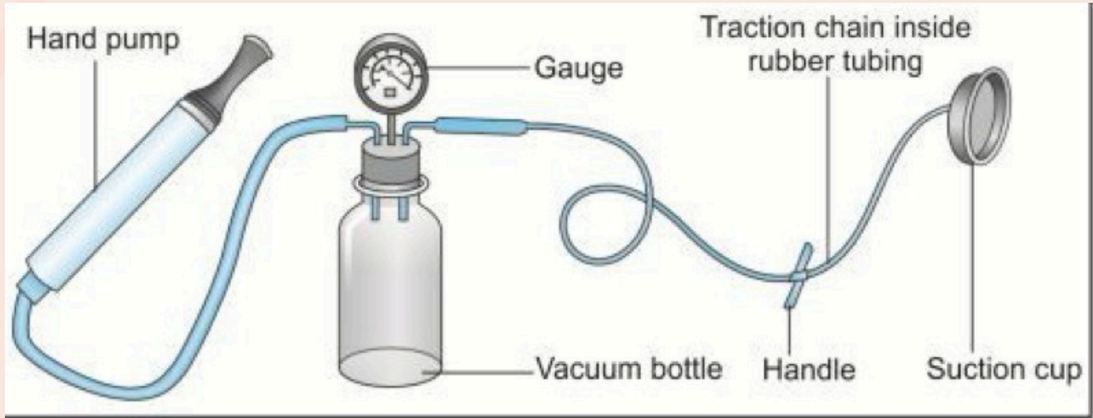
02
VACUUM



VENTOUSE/VACUUM EXTRACTORS

- The basic premise of vacuum extraction is that a suction cup, of a silastic or rigid construction (metal), is connected, via tubing, to a vacuum source. Either directly through the tubing (flexible hose)or via a connecting chain (metal linkage),

- Direct traction can then be applied to the presenting part coordinated with maternal pushing to expedite birth. Recent developments have removed the need for cumbersome external suction generators and have incorporated the vacuum mechanism into ‘hand-held’ pumps (e.g. OmniCup).



Prerequisites for Operative Vaginal Delivery

- Cervix fully dilated
- Membranes previously ruptured
- Engagement of the fetal head
- The clinician has determined the position of the fetal head
- Fetal weight estimation performed previously
- Gestational age >34 weeks
- Pelvis thought to be adequate for vaginal delivery
- Adequate anesthesia (often an epidural)
- The maternal bladder has been emptied
- The patient agrees to the procedure after informed consent
- A backup plan in case of failure is in place (typically cesarean delivery).

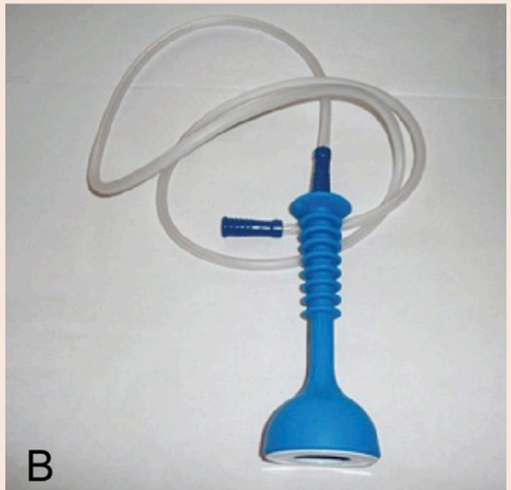
Types

Metal ventouse cup

It is really great for rotational deliveries but causes the most head trauma, suitable for OP positions

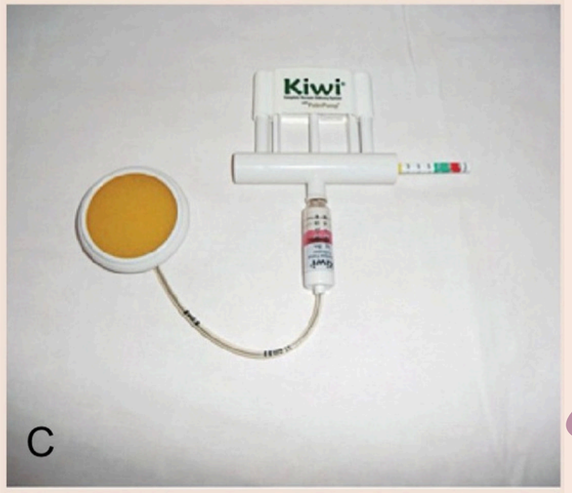
Silicone rubber cup (silastic cup)

single use, only suitable if the fetus is in an occiput-anterior position



OmniCup (KIWI)

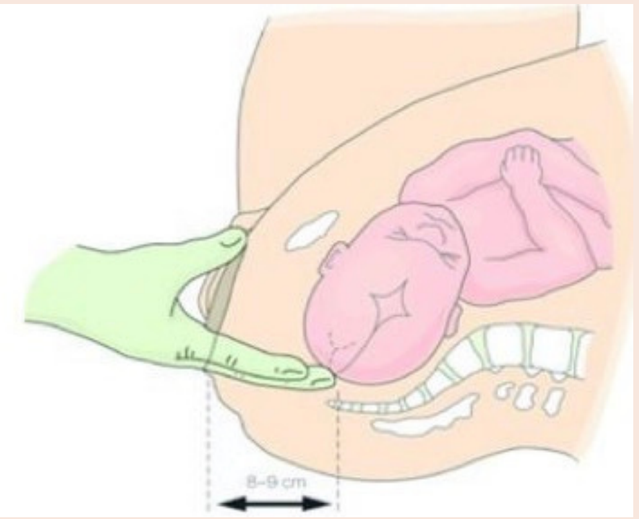
Single-use, can be used for all fetal positions, and rotational deliveries.



Contraindications of vacuum use

- **Fetal bleeding disorders**
  - Conditions where the baby’s blood cannot clot properly.
  - Examples: hemophilia, neonatal alloimmune thrombocytopenia, von Willebrand’s disease.
  - Why: Using a vacuum could cause intracranial hemorrhage or severe head bruising.
- **Fetal demineralizing diseases**
  - Conditions that make the baby’s bones very fragile.
  - Example: osteogenesis imperfecta.
  - Why: Any traction on the head can fracture the skull or bones.

- **Gestational age < 34 weeks**
  - Babies born before 34 weeks have very soft skulls and delicate tissues.
  - Using a vacuum in these cases is highly risky → usually a cesarean section is preferred.



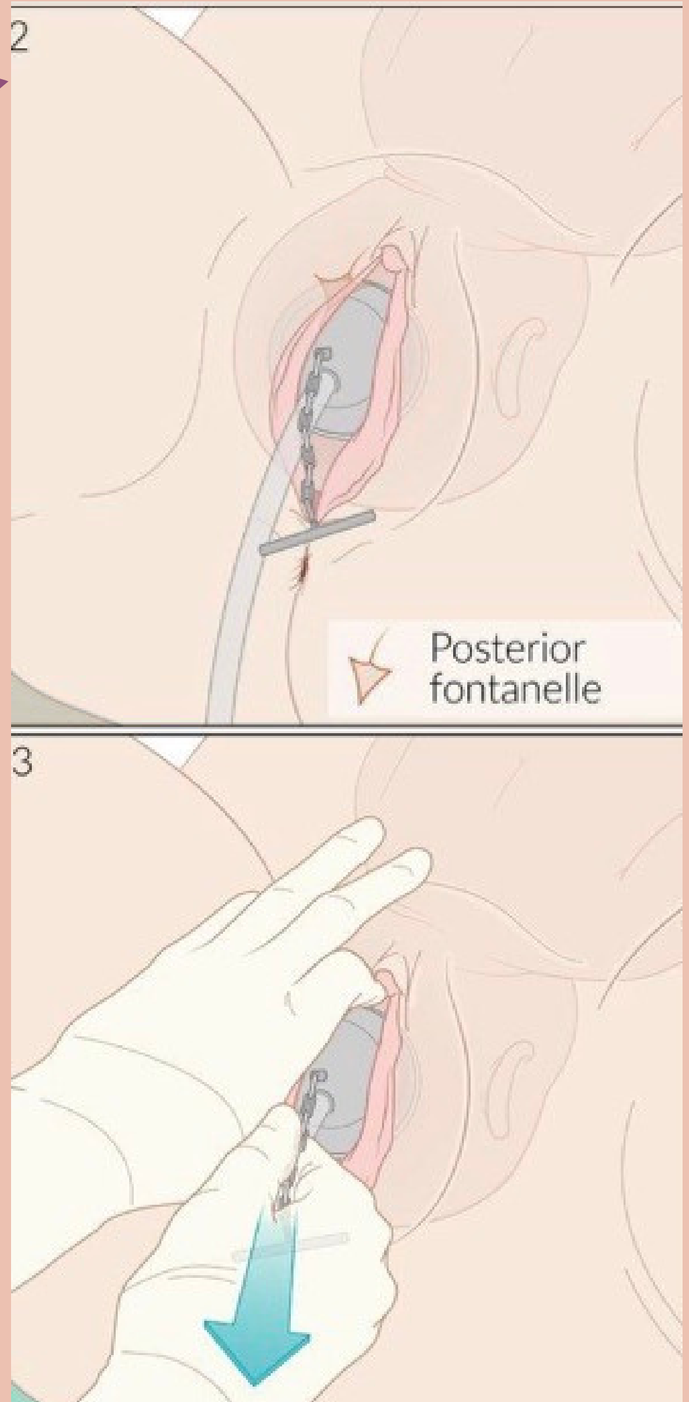
TECHNIQUE OF Vacuum

Soft vacuum cups are significantly more likely to fail to achieve VACUUM
vaginal birth than rigid cups; however, they are associated with less scalp injury.

Where do I place the cup ?

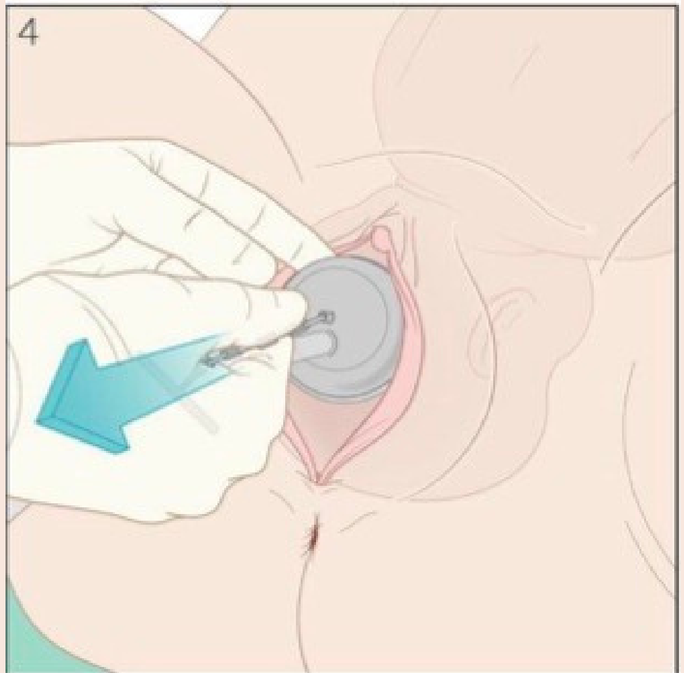
For successful use of the vacuum, determination of the flexion point is vital. This is located at the vertex, which, in an average term infant, is on the sagittal suture 3 cm anterior to the posterior fontanelle and thus 6 cm posterior to the anterior fontanelle. (the distance between the anterior and posterior fontanelle is 9 cm) The centre of the cup should be positioned directly over this (fetal pivot point), as failure to do so will lead to progressive deflexion of the fetal head during traction and an inability to deliver the baby safely.

TECHNIQUE OF Vacuum

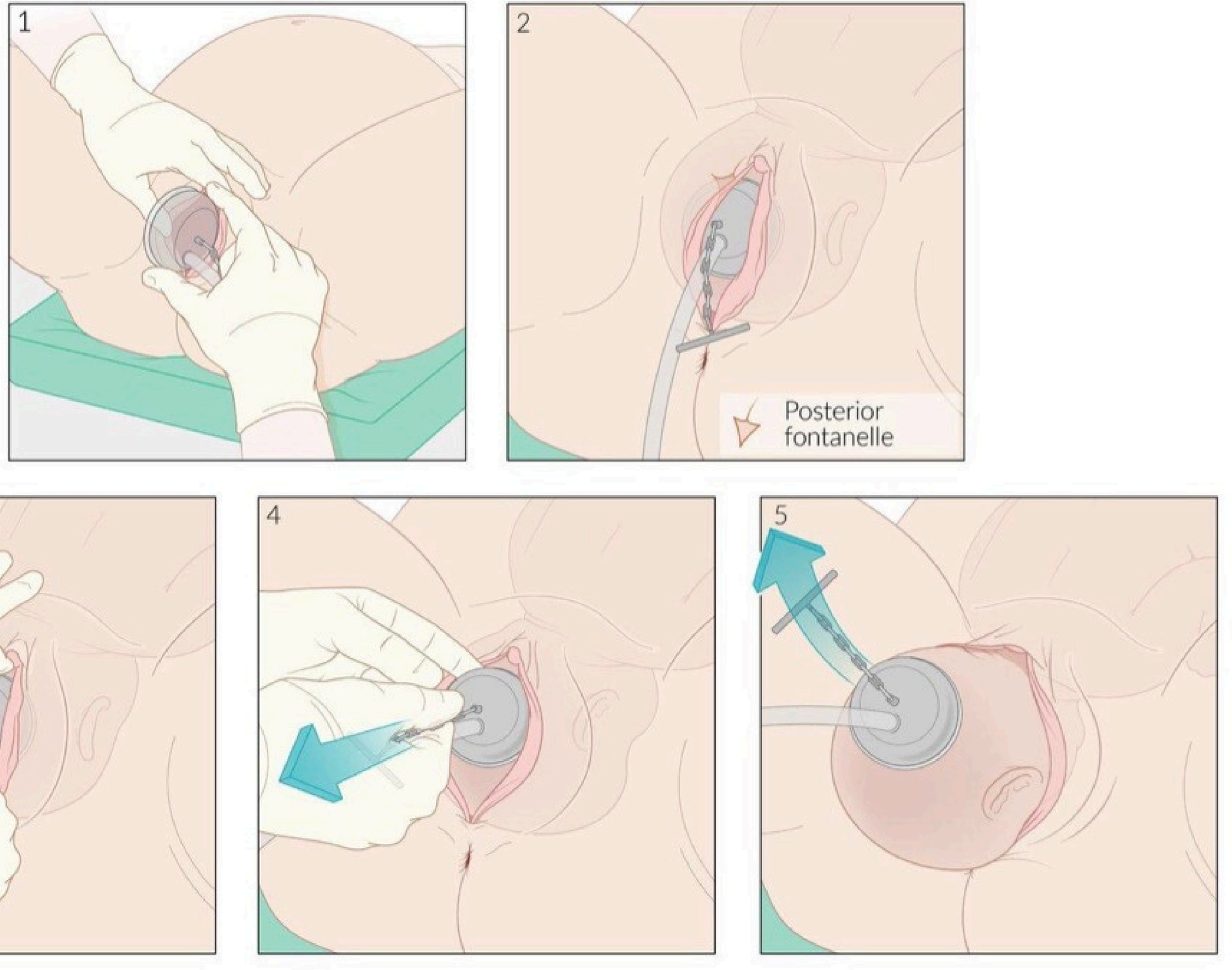


The operating vacuum pressure for nearly all types of device is VACUUM
between 0.6 and 0.8 kg/cm2. It is prudent to increase the suction to 0.2 kg/cm2 first and then to recheck that no maternal tissue is caught under the cup edge. When this is confirmed, the suction can then be increased.
Traction must occur in the plane of least resistance along the axis of the pelvis – the traction plane . This will usually be at exactly **90° to the cup** and the operator should keep a thumb and forefinger on the cup and fetal scalp to ensure that the traction direction is correct and to feel for slippage. Safe and gentle traction is then applied coordinated **with uterine contractions** and voluntary maternal expulsive efforts. There is a descent phase, bringing the head onto the perineum, which is usually achieved in at most three pulls.

When do I stop the suction ?



The suction is removed, and the cup is detached once the fetal head is crowning. The rest of the delivery is then carried out in the usual manner.
With any vacuum, the operator should allow **no more than two episodes** of breaking the suction ‘pop-offs’ in a vacuum-assisted birth, and the maximum time from application to delivery should ideally be less than 15 minutes.
Rotation is achieved by the natural progression of the head through the pelvis. It is not acceptable to use a vacuum when the position of the fetal head is unknown, there is a significant degree of caput that may either preclude correct placement of the cup or, more sinisterly, indicate a substantial degree of cephalopelvic disproportion, or the operator is inexperienced in the use of the instrument.


1
2
Posterior
fontanelle
3
4
5

When should attempted vacuum assisted birth be discontinued?

- Discontinue vacuum-assisted birth where there is no evidence of progressive descent with moderate traction during each pull of a correctly applied instrument by an experienced operator.

- Complete vacuum-assisted birth in the majority of cases with a **maximum of three pulls** to bring the fetal head on to the perineum. Three additional gentle pulls can be used to ease the head out of the perineum.

- If there is minimal descent with the **first two pulls of a vacuum**, the operator should consider whether the application is suboptimal, the fetal position has been incorrectly diagnosed or there is cephalopelvic disproportion. Less experienced operators should stop and seek a second opinion. Experienced operators should re-evaluate the clinical findings and either change approach or discontinue the procedure.

- Discontinue vacuum-assisted birth if there have been **two 'pop-offs'** of the instrument. Less experienced operators should seek senior support **after one 'pop-off'** to ensure the woman has the best chance of a successful assisted vaginal birth.

- The rapid negative pressure application for vacuum-assisted birth is recommended as it reduces the duration of the procedure with no difference in maternal and neonatal outcomes.

- The use of sequential instruments is associated with an increased risk of trauma to the infant. However, the operator needs to balance the risks of a caesarean birth following failed vacuum extraction with the risks of forceps birth following failed vacuum extraction.

“No progress = stop. Repeated pop-offs = stop. Doubt CPD = stop.”

Pop-off vs Failure of Trial (RCOG-based clarification)

Pop-off

An event during vacuum-assisted delivery where the cup detaches from the fetal head. It may indicate suboptimal cup placement, incorrect traction, or cephalopelvic disproportion.

Failure of trial

The inability to achieve vaginal delivery despite appropriate use of vacuum, requiring abandonment of the procedure and consideration of alternative delivery (forceps or cesarean section).

ASSISTED VAGINAL BIRTH RECORD

Patient details: (addressograph)

Operator: Grade:
Supervisor: Grade:

Indication (s) for birth: .....

Classification of OVB: Outlet □ Low □ Mid-pelvic □ Rotation > 45^0 Yes □ No □

Classification of CTG: Normal □ Suspicious □ Pathological □ **Liquor**: Clear □ Meconium □ None seen □

Prerequisites:

Place of birth Labour Room □ Theatre □
Analgesia Local □ Pudendal □ Regional □
Consent Verbal □ Written □
Bladder emptied Yes □ No □

Examination

1/5ths per abdomen: 0 □ +1 □
Dilatation: Fully □
Position: OA□ LOA□ ROA□ OP□ LOP□ ROP□ LOT□ ROT□
Station: 0□ +1□ +2□ +3□
Caput: 0□ +□ ++□ +++□
Moulding: 0□ +□ ++□ +++□

Approach & Choice of Instrument

APPROACH TO Assisted vaginal Birth AND TECHNIQUE

- Assisted vaginal Birth should be performed by operator who has the knowledge, skills and experience necessary to assess the woman, complete the procedure and manage any complications that arise.
-its safety criteria forAssisted vaginal birth ?
-classification of assisted vaginal birth and CTG?
-consent is required prior to attempting assisted vaginal birth(verbal , written).
-Where should assisted vaginal birth take place?

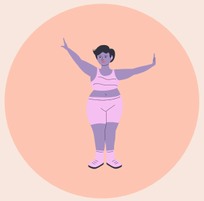
Lower risk of failure

Birth Room

Higher risk of failure

Attempted in a place where immediate recourse to caesarean birth can be undertaken(theatre).

Higher rates of failure are associated with:



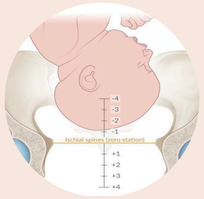
Maternal BMI greater than 30

Short maternal stature

Estimated fetal weight of greater than 4 kg or a clinically big baby

Head circumference above the 95th percentile

Occipito–posterior position



Midpelvic birth or when one-fifth of the head is palpable per abdomen.

Analgesia

Analgesic requirements are greater for forceps than for vacuum-assisted births. When rotational forceps or mid-pelvic direct traction forceps are needed, regional analgesia is preferred. For a rigid cup vacuum- assisted delivery, a pudendal block with perineal infiltration may be all that is needed and, if a soft cup is used, analgesic requirements may be limited to perineal infeltration? with local anaesthetic.

Positioning

Assisted vaginal birth is traditionally performed with the patient in the lithotomy position. The angle of traction needed requires that the bottom part of the bed be removed. In patients with limited abduction (such as those with symphysis pubis dysfunction), it may be necessary to limit abduction of the thighs to a minimum. The bladder should be emptied with a catheter to avoid injury.

CHOICE OF INSTRUMENT:

The guidelines of the RCOG in the UK recommend that obstetricians should be competent and confident in the use of both forceps and vacuum and that practitioners should choose the most appropriate instrument for the individual circumstances. The choice of instrument should be based on a combination of **indication, experience and training**. The aim should be to **complete the delivery successfully with the lowest possible morbidity**, and the preferences of the mother should be taken into account.

Vacuum (compared with forceps) is significantly *more likely* to be associated with:

1.Failure to achieve a vaginal birth.
2.Cephalhematoma (subperiosteal bleed)
3. Retina haemorrhage.
(2&3 are neonatal complication)
4.Maternal worries about the baby.

Vacuum (compared with forceps) is significantly *less likely* to be associated with:

1.The use of maternal regional/general anaesthesia
2.Significant maternal perineal and vaginal trauma
3.Sever perineal pain at 24 hours

Vacuum and forceps are *similar* in terms of:

1. Delivery by caesarean section (where failed vacuum is completed by forceps)

CHOICE OF INSTRUMENT:

Vacuum is preferred as a first-line instrument by many obstetricians in terms of reduced maternal trauma, but this needs to be balanced with a failure rate of 10–20% compared with a failure rate with forceps of 5% or less for similar deliveries. The morbidities for the baby differ, with a higher incidence of cephalohematoma and cerebral haemorrhage with vacuum and a higher incidence of lacerations and facial palsy with forceps.

NOTE:Vacuum birth should be avoided below 32 weeks of gestation and should be used with caution between 32 and 36 weeks of gestation.

Procedure

Instrument used (tick all)

Vacuum: Sialastic □ Kiwi □ Metal anterior □ Metal posterior □

Forceps: Rotational □ Non-rotational □ Outlet □

Number of pulls:

Traction: Gentle □ Moderate □ Strong □

Maternal effort: Sub-optimal □ Optimal □

Placenta: Physiological □ CCT □ Manual □

Episiotomy: Yes □ No □

Perineal tear: 1st degree □

2nd degree □

3rd / 4th degree □ *(complete proforma)*

Other □ *(complete proforma)*

EBL.....

Multiple instrument use Yes □ No □

Examination before second instrument

1/5ths per abdomen 0 □ +1 □

Position: OA□ LOA□ ROA□ OP□ LOP□ ROP□ LOT□ ROT□

Station: 0□ +1□ +2□ +3□

Caput: 0□ +□ ++□ +++□

Moulding: 0□ +□ ++□ +++□

Decision for second instrument:

.....

.....

Time of decision:

Time instrument applied:

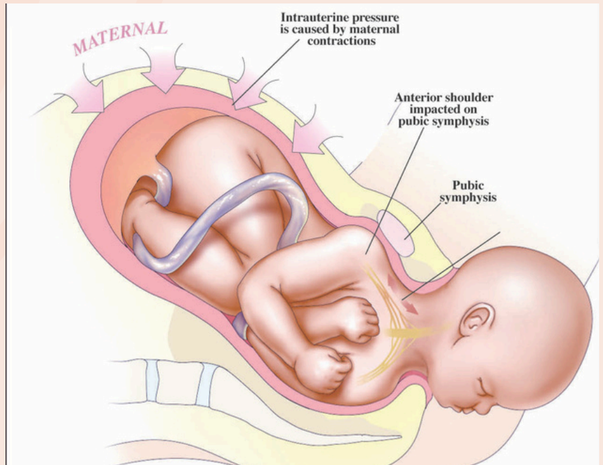
Time second instrument applied:

Time of birth:

CONTINGENCY PLANNING

With any Assisted vaginal birth , there is the potential for failure with the chosen instrument and the operator must have a back-up plan for such an event. It may be possible to complete a failed vacuum-assisted birth with low-pelvic forceps, but failed or abandoned forceps delivery will almost always result in caesarean section.

With any difficult assisted vaginal birth , the risk of **shoulder dystocia** after successful delivery of the fetal head should be considered, as should the potential for **post-partum haemorrhage**. The operator must develop the skills necessary to anticipate such events and to manage the consequences in a logical and calm manner. If the assisted vaginal birth is being performed for suspected fetal compromise,then the need for neonatal resuscitation should be anticipated and a neonatologist should have been called to attend.

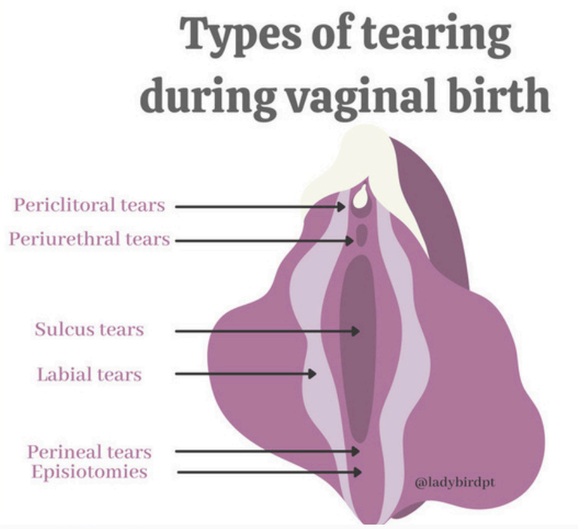


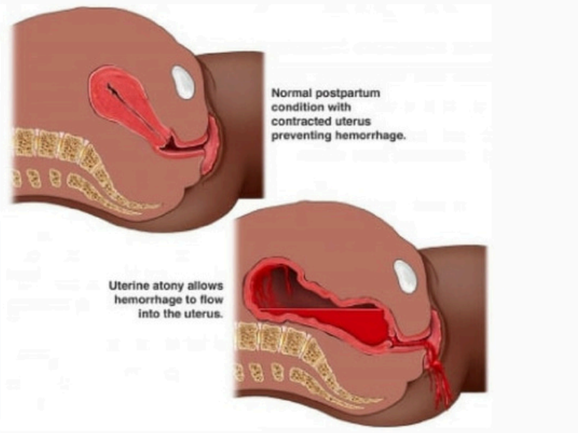
COMPLICATIONS

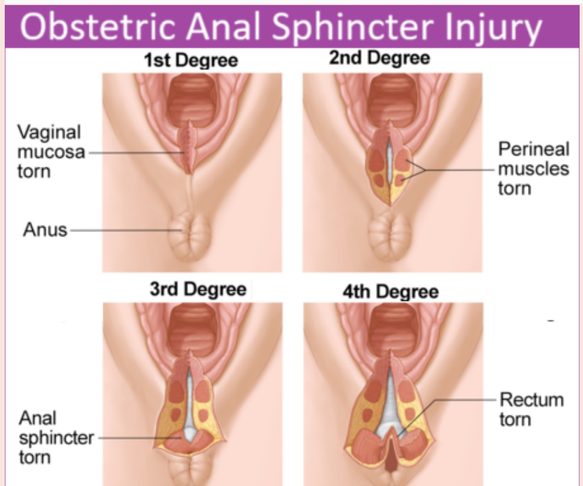
Most complications are due to faulty technique rather than the instrument.

Maternal complications:

- **Injury**: extension of episiotomy involving anus, rectum, or vaginal vault; vaginal lacerations; cervical tear (if cervix not fully dilated)
- **Postpartum hemorrhage (PPH)**: due to trauma or uterine atony
- **Shock**: due to blood loss, dehydration, or prolonged labour
- **Increased use of maternal regional anesthesia**
- **Pelvic floor disorders**: urinary incontinence, fecal incontinence, pelvic organ prolapse
- **Urinary incontinence** (up to 24% within 6 months, especially with forceps)

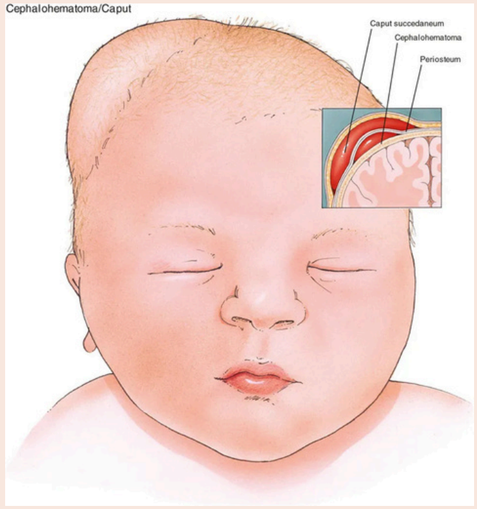




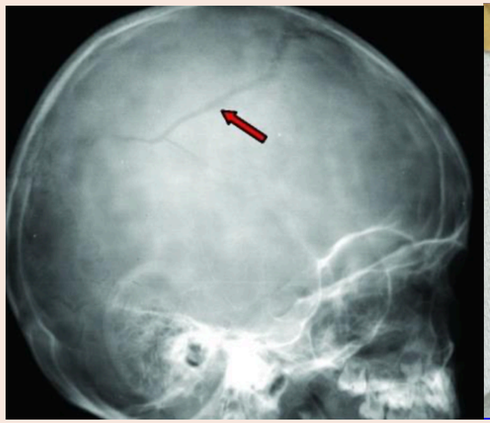


Fetal complications:

Cephalohematoma : is increased with the use of the vacuum and there are rare reports of life-threatening intracranial injuries such as subgaleal haemorrhage (predominantly vacuum, 1–12%.)



Facial palsy, intra- or extra-cranial haemorrhage and skull fracture with Forceps assisted birth



Linear skull fracture

Facial palsy

Fetal complications:

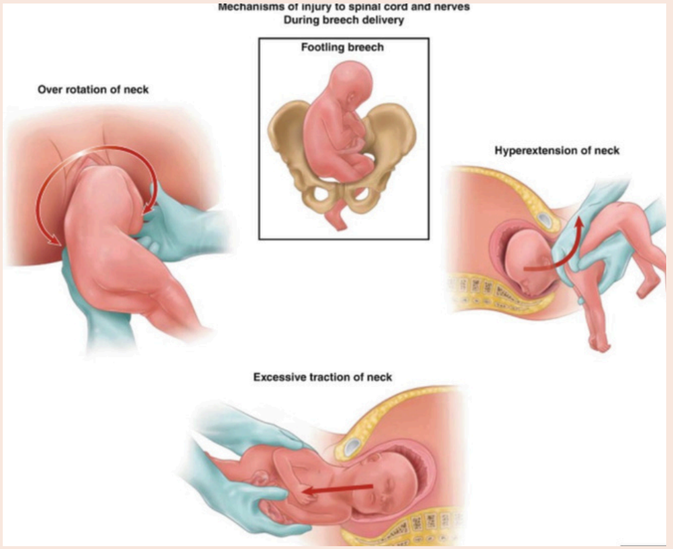
Retinal haemorrhage; more common with vacuum than forceps, variable 17–38%.

Facial or scalp lacerations; vacuum and forceps, 10%.

Fetal complications:

Jaundice or hyperbilirubinemia; vacuum and forceps, 5–15%.

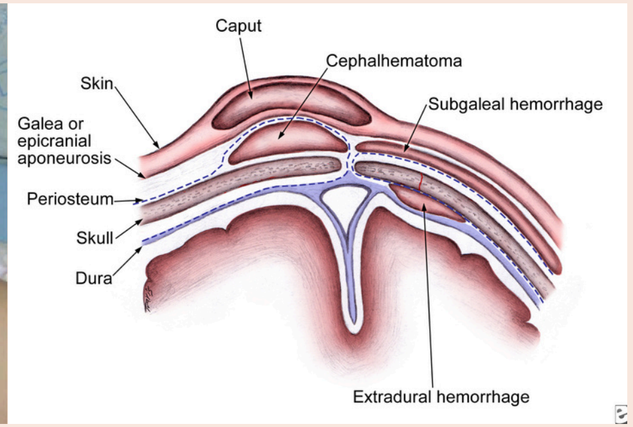
Cervical spine injury; mainly Kiellands rotational forceps, rare



Fetal complications:

Subgaleal haemorrhage; predominantly vacuum, 3 to 6 in 1000.

Fetal death; very rare.



VACUUM EXTRACTION
VS
FORCEPS ASSISTED BIRTH

FEATURE	VACUUM EXTRACTION	FORCEPS ASSISTED BIRTH
More likely to fail at achieving vaginal birth	✓ Yes	✗ No
More likely to be associated with cephalhaematoma	✓ Yes	✗ No
More likely to be associated with retinal haemorrhage	✓ Yes	✗ No
More likely to be associated with maternal worries about baby	✓ Yes	✗ No
Less likely to be associated with significant maternal perineal and vaginal trauma	✓ Yes	✗ No
No more likely to be associated with birth by caesarean birth	= No difference	= No difference
No more likely to be associated with low 5 min Apgar scores	= No difference	= No difference
No more likely to be associated with the need for phototherapy	= No difference	= No difference

✓ **Yes** = More likely / Less likely ✗ **No** = Not more likely = **No difference** = Similar risk

Thanks